DT01 Rec'd PCT/PTC 2 2 DEC 2004

1. (currently amended): A compound of formula (I) or (II)

$$\begin{array}{c} (Q^{+} \ X^{-})p \\ L_{1} - G_{1} \\ N - O \end{array}$$

$$(Q^{+} \ X^{-})q \\ (Q^{+} \ X^{-})q - L_{3} \\ O - N \\ G_{2} \\ G_{2} \\ \end{array}$$

$$(Q^{+} \ X^{-})q - L_{3} - Q_{2} - L_{4} - Q_{2} - G_{1} \\ O - N \\ G_{2} \\ \end{array}$$

$$(Q^{+} \ X^{-})r \\ (II)$$

wherein

 G_1 and G_2 independently represent a tertiary carbon atom to which <u>an</u> unsubstituted C_1 - C_{18} alkyl or phenyl or with CN, COC₁- C_{18} alkyl, CO-phenyl, COOC₁- C_{18} alkyl, OC₁- C_{18} alkyl, NO₂, NHC₁- C_{18} alkyl or N(C₁- C_{18})₂alkyl substituted alkyl or phenyl groups are bonded; or one of

 G_1 and G_2 is a secondary carbon atom to which a group -P(O)(OR₂₂)₂ is bonded and the other is as defined above; or

 G_1 and G_2 together with the nitrogen atom to which they are bonded form a 5 to 8 membered heterocyclic ring or a polycyclic or spirocyclic 5 to 20 membered heterocyclic ring system, which is substituted with 4 C_1 - C_4 alkyl groups or 2 C_5 - C_{12} spirocycloalkyl groups in the ortho position to the nitrogen atom and which may be further substituted with one or more C_1 - C_{18} alkyl, C_1 - C_{18} alkoxy or =0 groups; and which may be interrupted by a further oxygen or nitrogen atom;

with the proviso that at least one of the 4 C₁-C₄alkyl groups in ortho position to the nitrogen atom is higher alkyl than methyl;

 L_1 , L_2 and L_4 is a linking group selected from the group consisting of

a direct bond, R₁-Y or R₂-C(O)-Y- where Y is attached to G₁ and/or G₂; C₁-C₂₅alkylene,

$$C_2$$
- C_{25} alkylene interrupted by -O-, -S-, -SO-, -SO₂-, $N-R_3$, N

$$\begin{array}{ccc} O & & \\ -II & & \\ -C-N- & & \\ & R_{\Delta} & & \\ \end{array}$$
 , phenylene-and or C_5 - C_8 cycloalkylene;

Y is O, or NR₉

 L_3 is a group containing at least one carbon atom and is such that the radical $\bullet L_3$ -(Q⁺X⁻) derived from the group is able to initiate polymerization of ethylenically unsaturated monomers;

Q₂ is a direct bond, O, NR₅ or NR₅R₆;

Q⁺ is a cationic group selected from the group consisting of

$$- \bigvee_{R_{7}}^{R_{5}} R_{6} \quad x^{-} , \quad - \bigvee_{R_{6}}^{NH} X^{-}, \quad - \bigvee_{R_{7}}^{R_{5}} R_{6} \quad x^{-} , \quad - \bigvee_{R_{6}}^{N} R_{6} \quad x^{-} , \quad - \bigvee_{R_{8}}^{N} R_{11} \quad x^{-} \quad \text{and}$$

$$R_{11}$$

wherein

R₁ is C₁-C₁₈alkylene,

R₂ is a direct bond or C₁-C₁₈alkylene,

R₃ is hydrogen or C₁-C₁₈alkyl,

R₄ is hydrogen or C₁-C₁₈alkyl,

 R_5 , R_6 and R_7 are each independently of the others hydrogen, C_1 - C_{18} alkyl, C_3 - C_{12} cycloalkyl, phenyl or C_7 - C_9 phenylalkyl or C_6 - C_{10} heteroaryl, which all may be unsubstituted or substituted by halogen, OH, NO₂, CN, C_1 - C_4 alkoxy, or

R₅, R₆ and R₇ together with the nitrogen or-phosphor phosphorous atom to which they are bonded form a 3-12 membered monocyclic or polycyclic ring which may contain further heteroatoms;

 R_8 is hydrogen or C_1 - C_{25} alkyl, C_3 - C_{25} alkyl interrupted by oxygen, sulfur or by $N-R_3$; or

C2-C24alkenyl,

 R_9 is hydrogen, C_1 - C_{18} alkyl, C_3 - C_{18} alkenyl, C_3 - C_{18} alkinyl, phenyl, C_7 - C_9 phenylalkyl, which all may be unsubstituted or substituted by one or more hydroxy, halogen or C_1 - C_4 alkoxy groups;

R₂₂ is C₁-C₁₈alkyl;

X is the anion of a C₁-C₁₈carboxylic acid which may contain more than one carboxylic acid group, fluoride, chloride, bromide, iodide, nitrite, nitrate, hydroxide, acetate, hydrogen sulfate, sulfate, C₁-C₁₈alkoxy sulfate, aromatic or aliphatic sulfonate, carbonate, hydrogen carbonate, perchlorate, chlorate, tetrafluoroborate, borate, phosphate, hydrogenphosphate hydrogen phosphate or mixtures thereof; and

p, q, and r are independently of each other a number from 0 to 10 and at least one is different from 0.

2. (currently amended): A compound according to claim 1 wherein in formula I or II $-L_1(Q^+X^-)$, $-L_2(Q^+X^-)$, and $-L_3(Q^+X^-)$, are a group

$$K_2$$
 K_3 wherein

K₁ and K₂ are hydrogen, C₁-C₁8alkyl, C₅-C₁₂cycloalkyl, phenyl or C7-C9phenylalkyl and

$$K_3$$
 is a group -COK $_4$ or $-$ Z- K_5 where

$$K_4 \text{ is a group } -Y - \swarrow Q^+ X^- \text{ , } -Y - \swarrow N^+ R_5 \text{ } X^- \text{ or } -N - N - N_6 X^- \text{ or } R_6$$

Z is -C(O)- or a direct bond, wherein

if Z is –C(O)-, K₅ has the same meaning as K₄, and

if Z is a direct bond, K₅ is

Y-CH₂-CHOH-CH₂-N⁺ R₅R₆ X⁻-{[(CH₂-CH₂)-(CH₂)_s-N⁺ R₅R₆ X]_t-CH₂-CH₂-(CH₂)_s-N⁺ R₅R₆R₇ X]_u, Q⁺X⁻, -CH₂Q⁺X⁻ or -CHCH₃Q⁺X⁻:

and Y is -O-, -NR9 or a direct bond;

$$Q^+ X^-$$
 is $-N^+_{R_7} - R_6 X^-_{7} - N^-_{R_5} - N^-_{R_5} - R_6 R_7$

the other substituents are as defined in claim 1.

3. (currently amended): A compound according to claim 1 of formulae la, lb, lc, ld or le

wherein

Q₁ is a direct bond or a -CH₂- group; wherein if Q₁ is a direct bond, T₈ is hydrogen, and

if Q₁ is -CH₂-, T₈ is methyl or ethyl;

 T_1 , T_2 , T_3 and T_4 are independently methyl or ethyl with the proviso that at least one is ethyl; T_7 and T_{10} are independently hydrogen or methyl;

T₅ and T₆ are hydrogen or

T₅ and T₆ together are a group =O, =NOH, =NO-T₉ or

 T_5 is hydrogen and T_6 is $-O-T_9$ or $-NR_9-T_9$ where T_9 is hydrogen, R_9 or $-C(O)-R_9$, where R_9 is hydrogen, C_1-C_{18} alkyl, C_3-C_{18} alkenyl, C_3-C_{18} alkinyl, phenyl, C_7-C_9 phenylalkyl, which may be unsubstituted or substituted by one or more hydroxy, halogen or C_1-C_4 alkoxy groups;

 T_{11} , T_{12} , T_{13} , T_{14} , T_{15} and T_{16} independently are C_1 - C_{18} alkyl, C_3 - C_{18} alkenyl, C_3 - C_{18} alkinyl, C_5 - C_{12} cycloalkyl, phenyl or C_7 - C_9 phenylalkyl; or

 T_{11} is hydrogen and T_{12} is a group $-P(O)(OC_2H_5)_2$ and the others are as defined above;

or T_{11} and T_{14} are a group -CH₂-O-T₉ and the others are as defined above; or T_{16} is a group -C(O)-Y-R₅ and the others are as defined above; or T_{11} , T_{12} and T_{13} are a group -CH₂OH; -L₃($Q^{+}X^{-}$), is a group

$$K_2$$
 K_3 wherein

K₁ and K₂ are hydrogen, C₅-C₁₂cycloalkyl, phenyl or C₇-C₉phenylalkyl and

$$K_3$$
 is a group -COK₄ or $-$ Z- K_5 where

 K_4 is $Y-[(CH_2-CH_2)-(CH_2)_s-N^{+}R_5R_6X]_t-CH_2-CH_2-(CH_2)_s-N^{+}R_5R_6R_7X^{-}$ or $-Y-CH_2-CHOH-CH_2-N^{+}R_5R_6X^{-}-\{[(CH_2-CH_2)-(CH_2)_s-N^{+}X^{-}R_5R_6]_t-CH_2-CH_2-(CH_2)_s-N^{+}R_5R_6R_7X^{-}\}_u$, where s and t-is are each a number from $\dot{0}$ -4 and u is 0 or 1; or

$$K_4$$
 is a group $-Y$ Q^+X^- , $-Y$ N^+R_5 X^- or $-N$ N^+ X^- or R_5

Z is -C(O)- or a direct bond, wherein

if Z is -C(O)-, K_5 has the meaning of K_4 , and

if Z is a direct bond, K₅ is

O-CH₂-CHOH-CH₂-N⁺ R₅R₆ X⁻-{[(CH₂-CH₂)-(CH₂)_s-N⁺ R₅R₆ X]_t-CH₂-CH₂-(CH₂)_s-N⁺ R₅R₆R₇ X]_u, Q⁺X⁻, -CH₂Q⁺X⁻ or -CHCH₃Q⁺X⁻;

Y is -O- or -NR₉;

$$Q^{+} X^{-} \text{ is } - \underset{R_{7}}{\overset{R_{5}}{\underset{+}{\bigvee}}} R_{6} X^{-} \xrightarrow{\text{$_{7}$ or }} - \underset{R_{6}}{\overset{NH}{\underset{+}{\bigvee}}} X^{-} \text{, and}$$

X and the other substituents are as defined in claim 1.

4. (currently amended): A compound according to claim 1 of formula IIa, IIb, IIc, IId or IIe

$$K_{3} \xrightarrow{K_{1}} O - N \xrightarrow{T_{2}} T_{1} \xrightarrow{T_{7}} A_{1} \xrightarrow{A_{1}} D \xrightarrow{A_{1}} Y \xrightarrow{T_{7}} T_{1} \xrightarrow{T_{2}} K_{1} \xrightarrow{K_{1}} N - O \xrightarrow{K_{1}} K_{3}$$
 (IIa)

$$\begin{array}{c} K_{3} & T_{2} & T_{1} & T_{7} \\ \hline K_{3} & K_{2} & T_{3} & T_{4} \end{array} \longrightarrow \begin{array}{c} A_{1} & A_{1} & A_{1} \\ \hline A_{2} & A_{2} & A_{2} \end{array} \longrightarrow \begin{array}{c} T_{7} & T_{1} & T_{2} \\ \hline A_{1} & A_{2} & A_{3} & C \end{array} \longrightarrow \begin{array}{c} K_{1} & K_{3} \\ \hline K_{2} & K_{3} & C & K_{2} \end{array}$$
 (IIc)

 A_1 and A_2 are independently hydrogen or together with the carbon atom to which they are bonded form a-carbonylgroup carbonyl group, -C(O)-;

D is a direct bond or C_1 - C_{12} alkylene, C_1 - C_{12} alkylene which is interrupted by one or more O, S, or NR₉ atoms, C_5 - C_{12} cycloalkylene or phenylene;

E is a group $-NR_9$ - $(CH_2)_x$ - NR_9 - where x is a number from 2 to 12, or a group

v is a number from 0 to 10 and w is 0 or 1;

Q₁ is a direct bond or a -CH₂- group; wherein

if Q₁ is a direct bond, T₈ is hydrogen, and

if Q₁ is -CH₂-, T₈ is hydrogen, methyl or ethyl;

Y is -O- or -NR₉;

 T_1 , T_2 , T_3 and T_4 are independently methyl or ethyl with the proviso that at least one is ethyl; T_7 is hydrogen or methyl;

-L₃(Q⁺X⁻), is a group

$$K_2$$
 K_3 wherein

K₁ and K₂ are hydrogen, C₅-C₁₂cycloalkyl, phenyl or C7-C9phenylalkyl and

 K_4 is $Y-[(CH_2-CH_2)-(CH_2)_s-N^{+}R_5R_6X]_{t^{-}}CH_2-CH_2-(CH_2)_s-N^{+}R_5R_6R_7X^{-}$ or $-Y-CH_2-CHOH-CH_2-N^{+}R_5R_6X^{-}-\{[(CH_2-CH_2)-(CH_2)_s-N^{+}R_5R_6X]_{t^{-}}CH_2-CH_2-(CH_2)_s-N^{+}R_5R_6R_7X\}_{u^{-}}$ where s and t-is_are each a number from 0-4 and u is 0 or 1; or

$$K_4$$
 is a group $-Y \longrightarrow Q^+ X^-$, $-Y \longrightarrow N^+ R_5 X^-$ or $-N \longrightarrow N^+ X^-$ or R_6

Z is -C(O)- or a direct bond, wherein

if Z is $-C(O)_{-1}$ K₅ has the meaning of K₄, and

if Z is a direct bond, K₅ is

 $O-CH_2-CHOH-CH_2-N^{+} R_5R_6 \ X^{-}\{[(CH_2-CH_2)-(CH_2)_s-N^{+} R_5R_6 \ X]_{t}-CH_2-CH_2-(CH_2)_s-N^{+} R_5R_6R_7 \ X\}_{u}, \\ Q^{+}X^{-}, \ -CH_2Q^{+}X^{-} \ or \ -CHCH_3Q^{+}X^{-};$

X and the other substituents are as defined in claim 1.

5. (currently amended): A compound according to claim 1 of formula IIIa, IIIb, IIIc, IIId or IIIe

 T_1 , T_2 , T_3 and T_4 are independently methyl or ethyl with the proviso that at least one is ethyl; T_7 is hydrogen or methyl;

Y is O or NR₉;

Q₁ is a direct bond or a -CH₂- group; wherein

if Q₁ is a direct bond, T₈ is hydrogen, and

if Q₁ is -CH₂-, T₈ is methyl or ethyl;

v is a number from 0 to 10 and w is 0 or 1;

K₇ is a group

-CH₂-CHOH-CH₂-N⁺ R₅R₆ X⁻-{[(CH₂-CH₂)-(CH₂)_s-N⁺ R₅R₆ X]_t-CH₂-CH₂-(CH₂)_s-N⁺ R₅R₆R₇ X]_u, where s and t-is <u>are each</u> a number <u>from</u> 0-4 and u is 0 or 1; or a group -D₁-Q⁺ X⁻ where D₁ is C₁-C₁₂alkylene, C₁-C₁₂alkylene which is interrupted by one or more O, S, or NR₉ atoms, C₅-C₁₂cycloalkylene or phenylene;

K₆ is-is selected from the group consisting of

 $(C_5-C_6 \text{cycloalkyl})_2 \text{CCN}, (C_1-C_{12} \text{alkyl})_2 \text{CCN}, -\text{CH}_2 \text{CH}=\text{CH}_2, (C_1-C_{12}) \text{alkyl}-\text{CR}_{30}-\text{C(O)}-(C_1-C_{12}) \text{alkyl},$

 (C_1-C_{12}) alkyl- $CR_{30}-C(O)-(C_6-C_{10})$ aryl, (C_1-C_{12}) alkyl- $CR_{30}-C(O)-(C_1-C_{12})$ alkoxy,

 (C_1-C_{12}) alkyl- CR_{30} -C(O)-phenoxy, (C_1-C_{12}) alkyl- CR_{30} -C(O)-N-di (C_1-C_{12}) alkyl,

 (C_1-C_{12}) alkyl- CR_{30} -CO- $NH(C_1-C_{12})$ alkyl, (C_1-C_{12}) alkyl- CR_{30} -CO- NH_2 , - CH_2 CH=CH- CH_3 ,

 $-CH_2-C(CH_3)=CH_2, \ -CH_2-CH=CH-phenyl, \quad -CH_2-C \stackrel{\bigcirc}{=} CH \quad \ \ , \ 3-cyclohexenyl, \ 3-cyclopentenyl,$

$$\bigcap_{O}$$
 , \bigcap_{O} and \bigcap_{H} , wherein

R₃₀ is hydrogen or C₁-C₁₂alkyl;

the alkyl groups are unsubstituted or substituted with one or more -OH, -COOH or -C(O) R_{30} groups; and

the aryl groups are phenyl or naphthyl which are unsubstituted or substituted with C_1 - C_{12} alkyl, halogen, C_1 - C_{12} alkoxy, C_1 - C_{12} alkylcarbonyl, glycidyloxy, OH, -COOH or -COO(C_1 - C_{12})alkyl, and X^- and the other substituents are as defined in claim 1.

6. (currently amended): A compound according to claim 1 of formula IVa

$$K_6-O-N$$
 T_3
 T_4
 T_4
 T_7
 T_7
 T_7
 T_7
 T_1
 T_2
 $N-O-K_6$ (IVa)

wherein

 T_1 , T_2 , T_3 and T_4 are independently methyl or ethyl with the proviso that at least one is ethyl; T_7 is hydrogen or methyl;

$$E_1$$
 is $X N_6 X N_5$ where x is a number from 2 to 12; $R_5 N_6$

 K_6 is-is selected from the group consisting of

$$\bigcap_{O}$$
 , \bigcap_{CN} , \bigcap_{O} and \bigcap_{H} \bigcap_{CN} , wherein

R₃₀ is hydrogen or C₁-C₁₂alkyl;

the alkyl groups are unsubstituted or substituted with one or more -OH, -COOH or $-C(O)R_{30}$ groups; and

the aryl groups are phenyl or naphthyl which are unsubstituted or substituted with C_1 - C_{12} alkyl, halogen, C_1 - C_{12} alkoxy, C_1 - C_{12} alkylcarbonyl, glycidyloxy, OH, -COOH or -COO(C_1 - C_{12})alkyl, and X^- and the other substituents are as defined in claim 1.

7. (currently amended): A compound according to claim 1 of formula Va, Vb, Vc, Vd or Ve

wherein

 T_1 , T_2 , T_3 and T_4 are independently methyl or ethyl with the proviso that at least one is ethyl; T_7 is hydrogen or methyl;

Q₁ is a direct bond or a -CH₂- group; wherein

if Q1 is a direct bond, T8 is hydrogen, and

if Q₁ is -CH₂-, T₈ is methyl or ethyl;

K₁ and K₂ are hydrogen, C₅-C₁₂cycloalkyl, phenyl or C7-C9phenylalkyl and

$$K_3$$
 is a group -COK₄ or $-$ Z-K₅ where

$$K_4$$
 is a group $-Y \longrightarrow Q^+ X^-$, $-Y \longrightarrow N^+ R_5 X^-$ or $-N \longrightarrow N^+ X^-$ or R_6

Z is -C(O)- or a direct bond, wherein

if Z is -C(O)-, K₅ has the meaning of K₄, and

if Z is a direct bond, K₅ is

O-CH₂-CHOH-CH₂-N⁺ R₅R₆ X⁻-{[(CH₂-CH₂)-(CH₂)_s-N⁺ R₅R₆ X]_t-CH₂-CH₂-(CH₂)_s-N⁺ R₅R₆R₇ X⁻}_u, Q⁺X⁻, -CH₂Q⁺X⁻ or -CHCH₃Q⁺X⁻;

K₇ is a group

-CH₂-CHOH-CH₂-N⁺ R₅R₆ X⁻-{[(CH₂-CH₂)-(CH₂)_s-N⁺ R₅R₆ X]_t-CH₂-CH₂-(CH₂)_s-N⁺ R₅R₆R₇ X}_u, where s and t-is are each a number from 0-4 and u is 0 or 1; or a group -D₁-Q⁺ X⁻ where D₁ is C₁-C₁₂alkylene, C₁-C₁₂alkylene which is interrupted by one or more O, S, or NR₉ atoms, C₅-C₁₂cycloalkylene or phenylene;

X and the other substituents are as defined in claim 1.

8. (currently amended): A compound according to claim 1 of formula VIa

$$K_{2} \xrightarrow{K_{1}} O - N \xrightarrow{T_{2}} T_{1} \xrightarrow{T_{7}} T_{7} \xrightarrow{T_{7}} T_{1} \xrightarrow{T_{2}} K_{1} \times K_{2}$$
 (VIa)

 T_1 , T_2 , T_3 and T_4 are independently methyl or ethyl with the proviso that at least one is ethyl; T_7 is hydrogen or methyl;

$$E_1$$
 is $X - N + (CH_2)x - N + (CH_2)x - N + (CH_2)x +$

K₁ and K₂ are hydrogen, C₅-C₁₂cycloalkyl, phenyl or C7-C9phenylalkyl and

$$K_3$$
 is a group -COK₄ or $-$ Z-K₅ where

$$K_4$$
 is a group $-Y - Q^+ X^-$, $-Y - Q^+ X^-$ or $-Y - Q^+ X^-$

Z is -C(O)- or a direct bond, wherein

if Z is -C(O)-, K_5 has the meaning of K_4 , and

if Z is a direct bond, K₅ is

O-CH₂-CHOH-CH₂-N⁺ R₅R₆ X⁻-{[(CH₂-CH₂)-(CH₂)_s-N⁺ R₅R₆ X]_t-CH₂-CH₂-CH₂-(CH₂)_s-N⁺ R₅R₆R₇ X⁻}_u, Q⁺X⁻, -CH₂Q⁺X⁻ or -CHCH₃Q⁺X⁻ and

X and the other substituents are as defined in claim 1.

9. (currently amended): A compound according to claim 3 of formula la1, lb1, lc1, ld1 or le1

Q₁ is a direct bond or CH₂;

 T_{17} and T_3 are ethyl and T_{27} and T_4 are methyl;

T₇ is methyl or H;

if Q₁ is a direct bond, T₈ is H;

if Q₁ is CH₂, T₈ is methyl or ethyl;

 T_{10} is H if T_7 is methyl or T_{10} is methyl if T_7 is H;

T₁₁, T₁₂, T₁₃, T₁₄, T₁₅ and T₁₆ are independently methyl or ethyl; or

 T_{11} is H, T_{12} is isopropyl, T_{13} is phenyl and T_{14} , T_{15} , and T_{16} are methyl; or

 T_{11} is H, T_{12} is $-P(=O)(OC_2H_5)_2$, T_{13} is t-butyl and T_{14} , T_{15} , and T_{16} are methyl; or

 T_{11} and T_{14} are $-CH_2O-T_9$ and T_{127} and T_{15} are methyl or phenyl and T_{137} and T_{16} are methyl or ethyl; or

 T_{11} , T_{12} , T_{13} , T_{14} , T_{15} are methyl and T_{16} is a group $-CO-O-R_9$ or $-CON(R_9)_2$; or

 T_{11} , T_{12} and T_{13} are $-CH_2OH$, T_{14} is H, T_{15} is isopropyl and T_{16} phenyl;

 T_9 is hydrogen, R_9 or $-C(O)-R_9$, where R_9 is hydrogen, C_1-C_{18} alkyl, C_3-C_{18} alkenyl, C_3-C_{18} alkinyl, phenyl, or C_7-C_9 phenylalkyl;

K₁ is H, K₂ is methyl or ethyl and

$$K_3$$
 is a group—CO-K4 —CO-K₄ or ——Z-K₅;

 K_4 is -Y- CH_2 - CH_2 - $(CH_2)_s$ - $N^+X^-R_5R_6R_7$ or; -Y- CH_2 -CHOH- CH_2 -N- CH_2 - CH_2 - $(CH_2)_s$ - $N^+X^-R_5R_6R_7$ where Y is O or NR_9 and S is a number from S to S:

if
$$K_3$$
 is $-$ Z- K_5 , Z is -CO- or a direct bond; and

if Z is –CO-, K_5 has the same meaning as K_4 ;

if Z is a direct bond, K_5 is a group -O-CH₂-CHOH-CH₂-N-CH₂-CH₂-(CH₂)_s-N⁺X⁻R₅R₆R₇ or -CH₂N⁺R₅R₆R₇ X⁻ and

X and the other substituents are as defined in claim 1 is the anion of a C₁-C₁₈carboxylic acid which may contain more than one carboxylic acid group, fluoride, chloride, bromide, iodide, nitrite, nitrate, hydroxide, acetate, hydrogen sulfate, sulfate, C₁-C₁₈alkoxy sulfate, aromatic or aliphatic sulfonate, carbonate, hydrogen carbonate, perchlorate, chlorate, tetrafluoroborate, borate, phosphate, hydrogen phosphate or mixtures thereof.

10. (currently amended): A compound according to claim 4 of formula IIa1, IIb1, IIc1 or IId1

$$K_{2} \xrightarrow{K_{1}} O - N \xrightarrow{T_{2}} T_{1} \xrightarrow{T_{7}} O - Q_{1} T_{8} \xrightarrow{O} O \xrightarrow{D} O \xrightarrow{T_{8}} Q_{1} \xrightarrow{O} \xrightarrow{T_{7}} T_{1} T_{2} \xrightarrow{K_{1}} N - O \xrightarrow{K_{1}} K_{2}$$

$$(IId1)$$

wherein

Q₁ is a direct bond or CH₂;

 T_{17} and T_3 are ethyl and T_2 , T_4 and T_7 are methyl;

if Q₁ is a direct bond, T₈ is H; and

if Q₁ is CH₂, T₈ is methyl or ethyl;

D is a direct bond, C₁-C₁₂alkylene or phenylene;

E is $-NR_5$ - $(CH_2)_x$ $-NR_5$ - where x_is 2 to 12 or a group

K₁ is H, K₂ is methyl or ethyl and

$$K_3$$
 is a group –CO- K_4 or — Z - K_5 ;

 K_4 is -Y- CH_2 - CH_2 - $(CH_2)_s$ - $N^{\dagger}X^{\dagger}R_5R_6R_7$ or; -Y- CH_2 -CHOH- CH_2 -N- CH_2 - CH_2 - $(CH_2)_s$ - $N^{\dagger}X^{\dagger}R_5R_6R_{7_4}$ where Y is O or NR_9 and s is a number from 0 to 2;

R₉ is hydrogen, C₁-C₁₈alkyl, C₃-C₁₈alkenyl, C₃-C₁₈alkinyl, phenyl₇ or C₇-C₉phenylalkyl;

if
$$K_3$$
 is $-CO$ - or a direct bond;

if Z is -CO-, K₅ has the same meaning as K₄;

if Z is a direct bond, K_5 is a group -O-CH₂-CHOH-CH₂-N-CH₂-CH₂-(CH₂)_s-N⁺X⁻R₅R₆R₇ or -CH₂N⁺R₅R₆R₇ X⁻;

and

X and the other substituents are as defined in claim 1 is the anion of a C₁-C₁₈carboxylic acid which may contain more than one carboxylic acid group, fluoride, chloride, bromide, iodide, nitrite, nitrate, hydroxide, acetate, hydrogen sulfate, sulfate, C₁-C₁₈alkoxy sulfate, aromatic or aliphatic sulfonate, carbonate, hydrogen carbonate, perchlorate, chlorate, tetrafluoroborate, borate, phosphate, hydrogen phosphate or mixtures thereof.

- **11.** (original): A process for preparing a monomer/polymer clay nanocomposite dispersion comprising the steps of
 - A) providing a first aqueous dispersion of a natural or synthetic clay which can be partially intercalated and/or exfoliated and wherein said clay has an exchangeable cation; adding a compound according to claim 1 to said dispersion and exchanging said cation at least partially;
 - B) adding to said dispersion at least one ethylenically unsaturated monomer and polymerizing at least a portion of said ethylenically unsaturated monomer.

- **12.** (original): A process according to claim 11 wherein the water phase of step A) is at least partially removed before performing step B).
- **13.** (currently amended): A process according to claim 11 wherein the compound according to claim 1 is added in an amount of from 1% to 100% by weight, based on the weight of the clay.
- **14.** (currently amended): A process according to claim 11 wherein the ethylenically unsaturated monomer or oligomer is selected from the group consisting of styrene, substituted styrenes, conjugated dienes, acrolein, vinyl acetate, vinylpyrrolidone, vinylimidazole, maleic anhydride, (alkyl)acrylic acid_anhydrides, (alkyl)acrylic acid salts, (alkyl)acrylic esters, (meth)acrylonitriles and (alkyl)acrylamides, vinyl halides-or and vinylidene halides or mixtures thereof.
- 15. (currently amended): A process according to claim 14 wherein the ethylenically unsaturated monomers are styrene, α -methyl styrene, p-methyl styrene or a compound of formula $CH_2=C(R_a)-(C=Z)-R_b$, wherein R_a is hydrogen or C_1-C_4 alkyl, R_b is NH_2 , $O^-(Me^+)$, glycidyl, unsubstituted C_1-C_{18} alkoxy, C_2-C_{100} alkoxy interrupted by at least one N and/or O atom, or hydroxy-substituted C_1-C_{18} alkoxy, unsubstituted C_1-C_{18} alkylamino, di(C_1-C_{18} alkyl)amino, hydroxy-substituted C_1-C_{18} alkylamino or hydroxy-substituted di(C_1-C_{18} alkyl)amino, $-O-CH_2-CH_2-N(CH_3)_2$ or $-O-CH_2-CH_2-N^+H(CH_3)_2$ An $\overline{}$; wherein

An is an anion of a monovalent organic or inorganic acid; Me is a monovalent metal atom or the ammonium ion-and Z is oxygen or sulfur.

- **16.** (original): A process according to claim 11 wherein an acid containing unsaturated monomer is added, which is selected from the group consisting of methacrylic anhydride, maleic anhydride, itaconic anhydride, acrylic acid, methacrylic acid, itaconic acid, maleic acid, fumaric acid, acryloxypropionic acid, (meth)acryloxypropionic acid, styrene sulfonic acid, ethylmethacrylate-2-sulphonic acid, 2-acrylamido-2-methylpropane, sulphonic acid; phosphoethylmethacrylate; the corresponding salts of the acid containing monomer, and combinations thereof.
- 17. (original): A process according to claim 11 wherein step B) is repeated with a second ethylenically unsaturated monomer which is different from the first one, leading to a block copolymer.

- **18.** (original): A process according to claim 11 wherein the natural or synthetic clay is selected from the group consisting of smectite, phyllosilicate, montmorillonite, saponite, beidellite, montronite, hectorite, stevensite, vermiculite, kaolinite, hallosite, synthetic phyllosilicates, and combinations thereof.
- **19.** (original): A monomer/polymer clay nanocomposite dispersion obtainable by a process according to claim 11.
- **20.** (original): A composition comprising an aqueous dispersion of a natural or synthetic clay which is partially intercalated and/or exfoliated and a compound according to claim 1.
- **21.** (currently amended): A composition according to claim-26_20, which contains additionally an ethylenically unsaturated monomer and/or an organic solvent.
- 22. Use of a compound of formula I or II A method for the polymerization of ethylenically unsaturated monomers which comprises polymerizing said monomers in the presence of a catalytically effective amount of a compound of formula I or II according to claim 1.
- 23. Use of a monomer/polymer clay nanocomposite dispersion obtainable according to claim 11 as additive in A method of improving the properties of paints, coatings, inks, adhesives, reactive diluents or in thermoplastic materials which comprises incorporating a monomer/polymer clay nanocomposite dispersion according to claim 19 therein.